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BORON DOESN'T BUILD BIGGER BICEPS

WASHINGTON, Dec. 19—Contrary to claims by companies, U.S. Department of Agriculture studies offer no evidence that boron can help men build muscle, report USDA scientists who are investigating boron as a possible essential trace mineral in American diets.

Forrest Nielsen, director of the USDA Human Nutrition Research Center in Grand Forks, N.D., said a number of companies have developed boron-containing supplements and have alleged the resulting increase in testosterone levels will enhance the muscle-building effects of weight lifting.

Nielsen said the companies' claims are based on findings of a 1987 study at the center, operated by USDA's Agricultural Research Service. That research did not examine muscle buildup in men, he said. Instead, it found that testosterone levels in women more than doubled.

"But the volunteers were all women past menopause, whose testosterone levels were extremely low to begin with," Nielsen said. Moreover, the increase was prompted by adding boron back to their boron-deficient diet, not by giving extra boron.

In subsequent studies with men and women, he said, "the level of dietary boron had no effect on testosterone levels in the men."

Grand Forks scientists are working to identify the potential role of boron, which is found mostly in fruits and vegetables. Nielsen said he and colleagues Curtiss Hunt and James Penland continue to find that boron affects brain function, bone structure and energy metabolism in human and animal studies.

Judy McBride (301) 344-3932

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MOROCCAN PLANT MAY GIVE AMERICAN "COUSIN" A RUNNING CHANCE TO SPREAD

WASHINGTON, Dec. 20—A long-unappreciated forage crop with the picturesque name "birdsfoot trefoil" may finally win its place in the sun.

Paul R. Beuselinck, a U.S. Department of Agriculture plant geneticist, says the plant's future popularity as a feed for livestock may be linked to its wild relatives from Morocco.

Beuselinck said the Moroccan "cousin" offers an important difference—rhizomes or underground "runners" that allow the plant to spread to new areas in pastures. As a result, the plant proliferates so much that the crop is not wiped out by root diseases that damage trefoil in this country.

The scientist found the rhizomes on wild birdsfoot trefoil he collected in Morocco during the late 1980s. Now, he says, he wants to genetically move the rhizomes into American varieties, which look like a finestemmed alfalfa with yellow flowers.

"If successful, I expect acreage of this perennial crop to double in size and help pastures that are now planted only to grass or are unimproved," said Beuselinck, who works for USDA's Agricultural Research Service at Columbia, Mo.

Trefoil tolerates poor soil conditions and abuse from grazing animals much better than alfalfa, the leading forage fed to dairy cows, he said. Also, it is palatable to animals, nutritious and does not cause bloat that grazing animals occasionally get from eating other legumes.

But, trefoil's popularity as a forage crop has been hampered by its susceptibility to root diseases, Beuselinck said.

"That's where the rhizomes of the Moroccan types could pay off," he said. "Rhizomes are like above-ground 'runners' that produce new strawberry plants, except rhizomes are below the soil. Rhizomes can root and make new daughter plants. Even if the mother plant dies from disease, new stands of rhizome-producing trefoil would survive.

"If commercial trefoil had rhizomes, root disease would become less important, much like a human having a rash," he added. "We get a rash, but it doesn't kill us. Rhizome-producing trefoil could live in spite of disease."

Linda Cooke (309) 685-4011

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USDA SEEKS COMMENTS ON PROPOSAL TO REVISE KIWIFRUIT STANDARDS

WASHINGTON, Dec. 20—The U.S. Department of Agriculture is seeking comments on a proposal to modify maturity and certain defect criteria in U.S. standards for grades of kiwifruit.

Daniel D. Haley, administrator of USDA's Agricultural Marketing Service, said that the defects at issue are "black sooty mold" and "alligator skin," a condition in which the fruit's skin lacks fuzz, is dark, and is noticeably crisscrossed, or "checked."

The proposed revision would set up a special category for alligator skin, providing specific scoring guidelines for that defect, and would also decrease the tolerance for black sooty mold.

Haley said proponents of the changes—the committee administering the federal marketing order for kiwifruit grown in California—say the changes are neccessary to meet consumers' objections to sooty mold and alligator skin on kiwifruit. In effect, the revised standards would keep such blemished fruit from reaching consumers, he said.

Also proposed is deleting reference in the standards to a soluble solids measurement procedure currently required to test kiwifruit maturity. Proponents of the deletion claim that the procedure is not entirely reliable. Eliminating it from the standards would permit other measurements for maturity to be developed, they say.

AMS works with industry representatives to establish or revise U.S. standards for nearly 200 agricultural products. The standards are used in grading programs paid for by the industries. The general public, as well as affected industries, may comment on the development and revision of grade standards.

The suggested revisions for kiwifruit standards were published in the Dec. 18 Federal Register. Written comments, postmarked or courier-dated no later than Feb. 17, should be sent in duplicate to the Standardization Section, Fresh Products Branch, Fruit and Vegetable Division, AMS, USDA, P.O. Box 96456, Rm. 2956-S, Washington, D.C. 20090-6456. Copies of the proposed rule are available from that office, (202) 720-2185.

Clarence Steinberg (202) 720-6179

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ARMENIAN DONATION INITIATES U.S. HUMANITARIAN FOOD AID TO SOVIET REPUBLICS

WASHINGTON, Dec. 20—The U.S. Department of Agriculture and the American Diocese of the Armenian Church today agreed on provisions for U.S. food donations to the people of Armenia, the first such donations under President Bush's $165 million plan for U.S. humanitarian food assistance to former republics of the Soviet Union.

Deputy Secretary of Agriculture Ann M. Veneman and Bishop Khajag Barsamian, primate of the diocese, signed two agreements providing for delivery and distribution of donated U.S. wheat and dairy products to Armenia starting in early January.

"A series of U.S. missions to the Soviet Union and the republics this year, including one in October led by Secretary of Agriculture Edward Madigan, targeted Armenia as the first region to receive U.S. humanitarian food aid," Veneman said. "Our donations will provide about a one-month supply of dry milk and two-month supply of butter to help offset food shortages anticipated in Armenia this winter."

The donations total 4,300 metric tons of butter, 1,150 tons of butter oil, and 2,150 tons of nonfat dry milk under Section 416(b) of the Agricultural Act of 1949; and 3,000 tons of bulgar wheat under USDA's Food for Progress Program. The total value of the donations is about $15 million including the cost of ocean freight.

The Armenian Church will handle distribution of the commodities in Armenia.

Veneman said USDA is working with several charitable organizations to develop additional agreements for distributing the remainder of the $165 million in humanitarian food aid to other regions and former republics of the Soviet Union. Areas targeted to receive these food shipments include St. Petersburg and other northern Russian cities in the Urals region, according to Veneman.

Specific targeted areas and commodity mixes will be announced as accords are reached with these charitable organizations, she said.

"This humanitarian aid is one part of U.S. food assistance to the Soviet Union totaling nearly $4 billion in 1991," Veneman said. "The assistance also includes credit guarantees for the purchase of U.S. agricultural commodities and technical assistance in improving food production and distribution."

The administration announced the humanitarian food aid package for the Soviet Union and republics in late November. The aid will be provided to regions and republics where critical food shortages are expected this winter. To the degree practicable, the assistance will be distributed through private voluntary organizations.

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#

WASTES FROM SOY OIL REFINING CAN BE RECYCLED

WASHINGTON, Dec. 23—A procedure used to decaffeinate coffee can be adapted to clean and recycle wastes from vegetable oil refining. The process could mean less use of landfills to dump the wastes. It can also mean fewer fire hazards from oil-soaked wastes which are prone to spontaneous combustion on hot summer days, U.S. Department of Agriculture scientists said today.

An average soybean oil refinery generates about 5,000 pounds of spent bleaching clay every day. That clay absorbs substances from the raw oil that a refinery doesn't want in the end product. At the same time, the clay soaks in some of the oil.

While refineries can chemically treat the clay to remove the oils, they must adhere to special requirements to safely dispose of the chemicals.

Scientists with USDA's Agricultural Research Service said handling of waste clay and chemicals could be replaced by using supercritical fluid extraction. This is a process in which gases such as carbon dioxide are heated and pressurized to act like liquids. This process has been used for years to decaffeinate coffee; it now can be used to clean the oil-absorbing clay.

"We've developed a method using supercritical carbon dioxide that extracts excess oil from the clay," said Jerry W. King, the chemist who heads the extraction project at the ARS National Center for Agricultural Utilization Research in Peoria, Ill.

"Using carbon dioxide, a nontoxic and nonflammable substance, as an extraction medium eliminates the chemical disposal problem as well as the fire hazard," King said.

Supercritical extraction would allow refineries to recover almost all of the oil absorbed by the clay, he said. That clay would have the potential

for being used again for oil refining. In both laboratory and pilot plant tests, 100 percent of the oil was removed from the waste clay.

King said extracted oil would be suitable for industrial applications. But, he added, the oil would need to be further refined if intended for human consumption.

Preliminary cost estimates indicate that using the process to extract oil would compare favorably with current methods, he said.

Supercritical fluids are gases such as carbon dioxide and nitrous oxide that are heated and compressed to densities resembling but never actually becoming liquids. For the waste clay, carbon dioxide was heated to 177.6 degrees F and subjected to 12,000 pounds of pressure per square inch.

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USDA OFFERS FINAL BOLL WEEVIL ENVIRONMENTAL IMPACT STATEMENT

WASHINGTON, Dec. 23—The U.S. Department of Agriculture's Animal and Plant Health Inspection Service has completed its final environmental impact statement for a National Boll Weevil Cooperative Control Program. The final plan has been forwarded to the Environmental Protection Agency.

"This final statement considers and responds to all comments received on the draft and its supplement," said Robert B. Melland, APHIS administrator.

Requests for copies of the document should be addressed to Nancy Sweeney, Project Leader, Environmental Analysis and Documentation, Biotechnology, Biologics and Environmental Protection, APHIS, USDA, Room 828 Federal Building, 6505 Belcrest Road, Hyattsville, Md. 20782.

Copies are also available from three regional offices: Southeastern Regional Office: A. S. Elder, Regional Director, 3505 25th Avenue, Building 1 North, Gulfport, Miss., 39501, (601) 863-1813; South Central Regional Office: Robert L. Williamson, Regional Director, 3505 Boca Chica Boulevard, Suite 360, Brownsville, Texas 78521-4065, (512) 548-2750/51/52/53; Western Regional Office: James Reynolds, Regional Director, 9580 Micron Avenue, Suite 1, Sacramento, Calif., 95827, (916) 551-3220.

A reference copy is available for review at the APHIS Reading Room, USDA, Room 1141, South Building, 14th Street and Independence Avenue, S.W., Washington, D.C. 20250, between 8 a.m. and 4:30 p.m., Monday through Friday, except holidays.

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USDA PROTECTS 23 NEW PLANT VARIETIES AND REISSUES ONE CERTIFICATE

WASHINGTON, Dec. 24—The U.S. Department of Agriculture has issued certificates of protection to developers of 23 new varieties of seed-reproduced plants including garden bean, rough bluegrass, celery, corn, red fescue, lettuce, orchardgrass, pea, rice, sorghum and soybean.

Kenneth H. Evans, with USDA's Agricultural Marketing Service, said developers of the new varieties will have the exclusive right to reproduce, sell, import, and export their products in the United States for 18 years. Certificates of protection are granted after a review of the breeders' records and claims that each new variety is novel, uniform, and stable.

The following varieties have been issued certificates of protection:

—the Bush Romano 635 variety of garden bean, developed by the Rogers NK Seed Co., Boise, Idaho;

—the Laser variety of rough bluegrass, developed by Lofts Seed Inc., Bound Brook, N.J.;

—the T&A Special Celery -1 variety of celery, developed by Tanimura & Antle Inc., Salinas, Calif.;

—the LH128, LH181, and LH208 varieties of corn, developed by Holden's Foundation Seeds Inc., Williamsburg, Iowa;

—the Jasper variety of red fescue, developed by Pickseed West Inc., Tangent, Ore.;

—the Salverde and Duchesse varieties of lettuce, developed by the Ferry-Morse Seed Co., San Juan Bautista, Calif.;

—the Racy Red, Genesys Green, Van 007X, Lettich and Champ varieties of lettuce, developed by Genecorp Inc., Salinas, Calif.;

—the Benchmark variety of orchardgrass, developed by the FFR Cooperative, West Lafayette, Ind.;

—the Impala variety of pea, developed by Cebeco Zaden B.V., the Netherlands;

—the Shield variety of pea, developed by the Asgrow Seed Co., Kalamazoo, Mich.;

—the NFD 108 and NFD 109 varieties of rice, developed by N.F. Davis Drier & Elevator Inc., Firebaugh, Calif.;

—the PH257, PH308, and PH309 varieties of sorghum, developed by Pioneer Hi-Bred International Inc., Plainview, Texas; and

—the 9121 variety of soybean, developed by Pioneer HiBred International Inc., Johnston, Iowa.

The certificate of protection for the K358 tobacco variety is being reissued at this time specifying that seed of the variety may be sold by variety name only as a class of certified seed.

The certificates of protection for the Impala pea variety and the NFD 108 and NFD 109 rice varieties are being issued to be sold by variety name only as a class of certified seed, and to conform to the number of generations specified by the owners.

The plant variety protection program is administered by AMS and provides marketing protection to developers of new and distinctive seedreproduced plants ranging from farm crops to flowers.

Rebecca Unkenholz (202) 720-8998

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USDA SEEKS COMMENTS ON PROPOSED PECAN PROMOTION AND RESEARCH PLAN

WASHINGTON, Dec. 24—The U.S. Department of Agriculture is seeking comments on a proposal to establish the promotion and research program authorized by the Pecan Promotion and Research Act, part of the 1990 Farm Bill.

Daniel D. Haley, administrator of USDA's Agricultural Marketing Service, said the program would be based on a proposal by the Federated Pecan Growers' Associations of the United States. It would be administered by a board of eight growers, four shellers, one first handler, one pecan importer and a member representing the public at large. The secretary of agriculture would appoint the members from nominees submitted by the pecan industry, as in existing research and promotion programs for other agricultural commodities.

A mandatory assessment of a maximum of two cents per pound (in shell) on domestic or imported pecans sold in the United States would

fund the program. There would be no minimum quantities or other exemptions from the assessment, except the board may exempt non-food use pecans.

Haley said the proposal was the only one received in response to USDA's requests for proposals, which appeared in the Jan. 30 and July 3 Federal Registers.

The proposal will appear as a proposed rule in the Dec. 26 Federal Register. Comments, in triplicate, should be sent by Jan. 24 to the Docket Clerk, Research and Promotion Branch, Fruit and Vegetable Division, AMS, USDA, Room 2533-S, P.O. Box 96456, Washington, D.C. 20090-6456. Copies of the proposal and additional information are available from Jim Wendland at that address, or telephone (202) 720-9916.

Rebecca Unkenholz (202) 720-8998

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INSECTICIDES MAY BE DERIVED FROM FUNGUS-INFECTED GRASS

WASHINGTON, Dec. 26—Natural insecticides that kill aphids have been found in fungus-infected tall fescue grass, U.S. Department of Agriculture scientists report.

Chemists Richard J. Petroski and Richard G. Powell of USDA's Agricultural Research Service said the compounds, called "N-acyl loline" derivatives or lolines, offer potential as environmentally-friendly insecticides against aphids and other pests in gardens and houseplants.

Working at the National Center for Agricultural Utilization Research, Peoria, Ill., the scientists extracted the compounds from tall fescue infected with the fungus "Acremonium coenophialum." Then ARS collaborators at the Northern Grain Insects Research Laboratory, Brookings, S.D., sprayed solutions of the compounds on barley plants infested with greenbug aphids.

Powell said these greenhouse tests showed five of the compounds were nearly as effective at killing the aphids as nicotine sulfate, a home and garden insecticide popular before modern synthetic insecticides became available.

"We used various concentrations of the different compounds and achieved a variety of results," said Powell. "As an example, a 0.05 percent solution of N-acetyl loline in water sprayed on plants killed 50 percent of the aphids."

Lolines would be fairly expensive to extract from plants because they generally are found in low concentrations. A biotechnology technique may make it possible to produce lolines at a lower cost in the future, Petroski said.

He and Powell discovered the compounds during research on ways to prevent tall fescue grass from interfering with cattle's ability to gain weight when grazing on the grass. Cattle often lose weight and may even become lame when they eat forage infected with Acremonium coenophialum.

This fungus causes tall fescue to make lolines and other compounds, perhaps to protect the fescue against pests, said Petroski. Lolines in plant leaves and stems may deter sucking insects such as aphids. But the compounds proved to be fatal when sprayed on and absorbed by the aphids.

Powell and Petroski have applied for a patent on the compounds. At least one company has shown interest in the research. As with all new pest control agents, further studies on the safety of long-term use would be required before a commercial product would be approved by the Environmental Protection Agency.

Ben Hardin (309) 685-4011

#

USDA ANNOUNCES 1992 FLUE-CURED TOBACCO NO-NET-COST ASSESSMENT

WASHINGTON, Dec. 27—The U.S. Department of Agriculture's Commodity Credit Corporation today announced a no-net-cost assessment of .22 cent per pound on the 1992 crop of flue-cured tobacco.

CCC Executive Vice President Keith Bjerke said the no-net-cost assessment, plus the 1992 tobacco marketing assessment, means that a total of 2 cents per pound will be collected on each pound of flue-cured tobacco marketed from the 1992 crop. The assessments will be shared equally between producers and purchasers with each paying 1 cent per pound on the 1992 crop.

Funds in the no-net-cost tobacco account ensure the price support program for flue-cured tobacco will be operated at no net cost to taxpayers, as required by the No-Net-Cost Tobacco Program Act of 1982.

The tobacco marketing assessment of 1.56 cents per pound, announced on Dec. 16, 1991, is required by the Omnibus Budget Reconciliation Act of 1990 and is to be shared equally between producers and purchasers.

Bjerke said the Flue-Cured Tobacco Cooperative Stabilization Corporation, the producer-owned association through which price support is made available for flue-cured tobacco, was consulted before a final determination was reached.

Robert Feist (202) 720-6789

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USDA SETS REFERENDUM ON AMENDMENTS TO CRANBERRY MARKETING ORDER

WASHINGTON, Dec. 27—The U.S. Department of Agriculture announced today that cranberry producers and processors in Massachusetts, Rhode Island, Connecticut, New Jersey, Wisconsin, Michigan, Minnesota, Oregon, Washington, and New York will vote Jan. 13-31 on proposed amendments to the federal marketing order for cranberries.

Daniel D. Haley, administrator of USDA's Agricultural Marketing Service, said the amendments are intended to improve the administration, operation and functioning of the cranberry marketing order program.

Haley said the amendments would authorize the Cranberry Marketing Committee to conduct production research and development projects; calculate annual allotments on the basis of sales histories; limit tenure for committee members to three consecutive two-year terms of office; establish provisions regarding excess cranberries, which would allow producers to deliver their entire crop during a year of volume controls; and require handlers to pay assessments on the weight of cranberries they acquire instead of on the weight of cranberries they handle.

In order for the amendments to become effective, they must be approved by at least least two-thirds of the growers voting; or by growers producing at least two-thirds of the total volume of cranberries produced

by all voting growers, and processors responsible for freezing or canning 50 percent of the total volume during the last crop year.

Notice of the referendum was published today in the Federal Register. AMS will mail ballots and a summary of the proposed amendments to all cranberry producers and processors of record by Jan. 11.

Producers and processors not receiving ballots or needing copies of the proposed amendments may obtain them from Patricia A. Petrella, Marketing Specialist, Marketing Order Administration Branch, AMS, USDA, P.O. Box 96456, Rm. 2522-S, Washington, D.C. 20090-6456, telephone (202) 720-9920.

Rebecca Unkenholz (202) 720-8998

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USDA PROPOSES CHANGES IN UPLAND COTTON AWP ANNOUNCEMENT SCHEDULE

WASHINGTON, Dec. 27—The U.S. Department of Agriculture's Commodity Credit Corporation is requesting comments on a proposal to change the announcement time of the weekly upland cotton adjusted world price (AWP) to Thursday at 8 p.m. Eastern time and to make the AWP effective upon announcement.

Presently, the AWP is announced as soon as possible after 4 p.m. Eastern time each Thursday and is effective from 12:01 a.m. Friday through midnight the following Thursday. If Thursday is a non-workday, the AWP is announced the next workday and is in effect for the same period as if it had been announced at the normal time.

CCC proposes that the AWP be announced at 8 p.m. Eastern time each Thursday and be effective upon announcement through 7:59 p.m. Eastern time the following Thursday. If Thursday is a non-workday, the AWP would be announced the next workday and be in effect for the same period as if it had been announced at the normal time.

The proposed change is intended to improve the operation of the upland cotton program by addressing inequities in access to the AWP among producers and other interested parties located in different U.S. time zones.

Details will appear in the Dec. 31 Federal Register. Comments should be addressed to Deputy Administrator, Program Planning and

Development, USDA-ASCS, Room 3790-S, P.O. Box 2415, Washington, D.C. 20013-2415, and must be received by Jan. 15 to be considered.

Robert Feist (202) 720-6789

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NEWSPAPERS TURNED INTO FERTILIZER

WASHINGTON, Dec. 30—A U.S. Department of Agriculture scientist is using newspapers to turn hard-packed dirt into crumbly, nutrient-rich soil.

Soil scientist James H. Edwards, with USDA's Agricultural Research Service in Auburn, Ala., is growing cotton, corn and soybeans on a bed of shredded Opelika-Auburn News and chicken litter mixed with soil.

"You have an ideal environment for root growth," he said, adding that the soil without the mixture is like sandstone. "A fingernail can't penetrate it."

When cotton plants are grown in the mix, roots reach 4 feet deep instead of the usual 6 inches in the Southeast. The roots aren't stopped by a compacted soil layer called "hardpan" that is common to that region, he said. "There's no reason the mix couldn't be used anywhere in the country."

His mixture has 40 percent shredded newspaper, 50 percent soil and 10 to 15 percent chicken litter, filling a trench 4 feet deep and 6 inches wide. He said the chicken litter decomposes the paper rapidly, probably due to microbes and ammonia available from the litter.

The scientist said the newspapers can include "regular newsprint and some grades of paper—like color ad inserts—that can't otherwise be recycled."

Edwards used a four-foot deep trench, "but for commercial use, two feet might be best" he said. He is testing the mix also on the surface and only six inches deep—applications that would be suited to home gardeners.

Edwards' research at the ARS soil dynamics laboratory in Auburn is starting to attract the interest of municipalities and industry. He said the city of Prattville, Ala., is "shipping grass clippings, leaves, shredded tree limbs and tree stumps here to test the composting technique as an alternative to landfills. We're also receiving waste plant material from cotton gins."

"It's a mistake to call newspapers, leaves and grass clippings 'waste'. They loosen soil, add organic matter, provide nutrients and beneficially affect soil pH," he said.

"We'd like to be able to maintain the soil at 2 to 4 percent organic matter," Edwards said. "So far, we have only one year's experience. In two more years, we'll know how well different mixtures work."

One change he will make is to lower the amount of chicken litter to 5 or 6 percent. That will be done, he said, to reduce the level of nitrate leaching from the litter.

"The idea is to find the percentage needed to turn the newspaper cellulose into soil-softening humus without having excess nitrates that can harm groundwater," he said.

Edwards also is monitoring soil temperature to ensure that the insulating effect of the newspaper, coupled with "hot" chicken litter, will not raise soil temperature and kill crops. Within soil, the litter can heat up, as in a compost pile. So far the soil temperature has only risen a negligible few degrees.

Next year, Edwards will mix gypsum, fly ash and lime with the newspapers and chicken litter. Gypsum and fly ash are by-products of coalburning power plants.

He plans to add another trench next year and the year after, placing them 40 inches apart. "We want to see if the organic matter in the trenches can move into the areas between the trenches and loosen that soil too."

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